

Socio-economic inequalities in intimate partner violence justification among women in Ghana: analysis of the 2014 Ghana Demographic and Health Survey data

Collins Adu  a,b,*

^aDepartment of Health Promotion, Education and Disability Studies, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; ^bCollege of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, QLD, Australia

*Corresponding author: Tel: +233547967122; E-mail: collinsadu80@yahoo.com

Received 23 September 2021; revised 21 April 2022; editorial decision 4 May 2022; accepted 6 May 2022

Background: One of the key reasons for the high prevalence of intimate partner violence among women is the justification of intimate partner violence. Socio-economic status of women plays a key role in intimate partner violence justification. This study investigated the socio-economic inequalities in the justification of intimate partner violence among Ghanaian women.

Methods: Data from the 2014 Ghana Demographic and Health Survey were used in this study. The study involved a total of 9267 women. A binary logistic regression analysis was performed to examine the socio-economic disparities in intimate partner violence justification. The findings were presented as adjusted odds ratios (aORs) with 95% confidence intervals (CIs) demonstrating precision. Statistical significance was set at $p < 0.05$.

Results: The prevalence of intimate partner violence justification among women in Ghana was 28.2%. Compared with women with no formal of education, those with a higher level of education (aOR 0.17 [95% CI 0.10 to 0.30]) were less likely to justify intimate partner violence. In terms of wealth status, women in the richest quintile had lower odds of justifying intimate partner violence compared with women in the poorest wealth quintile (aOR 0.44 [95% CI 0.28 to 0.67]).

Conclusions: Interventions, policies, strategies and programs such as women's equitable access to formal education, formation of stronger social networks to improve women's socio-economic status, advocacy to stop intimate partner violence and empowerment interventions among women should be focused toward contextualizing intimate partner violence in terms of the acceptance of this behaviour, since this can play a significant role in victimization and perpetration.

Keywords: Demographic and Health Survey, Ghana, justification of intimate partner violence.

Introduction

Intimate partner violence (IPV) is a major social problem globally.¹ IPV has a variety of health and social consequences for women and their children, including suicide, anxiety, depression, post-traumatic stress syndrome, substance abuse, low self-esteem and increased smoking.^{2,3} IPV has long been considered the most serious form of violence against women.⁴ According to the World Health Organization (WHO), at least one in every three women in the world is subjected to sexual, emotional or physical violence by an intimate partner.⁵

The prevalence of IPV among women in sub-Saharan Africa (SSA) remains unacceptably high, with about 33% lifetime IPV

prevalence.⁵ In 2021, women are more likely to be victims of IPV than men, with roughly 27% of women reporting IPV worldwide.⁵ Since violence in SSA is built on sociocultural ideas that consider it a cultural standard to keep women disciplined, most women in SSA do not disclose instances of violence.⁶ Men have historically been the primary perpetrators of IPV against women, regardless of their religious, social or cultural affiliations.⁷ IPV is a major public health concern in Ghana.⁷ There is evidence that at least one form of domestic physical intimate partner abuse was experienced by 27.7% of women in Ghana in 2016.⁸ Economic violence was the most common form of domestic violence reported by women, followed by social

violence, psychological violence, physical violence and sexual violence.⁸

The United Nations introduced conventions to eliminate violence against women, such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), which contains provisions to protect women's well-being and rights in order to reduce the rising prevalence of violence directed against them.^{9,10} Sustainable Development Goal 5 (Gender Equality and Women Empowerment) aims for greater gender equality and women's empowerment around the world. SDG 5.1, in particular, aspires to eliminate all types of discrimination against all women, while SDG 5.2 focuses on ending all forms of violence against all women in both the private and public realms.⁹

IPV happens in all countries, but acceptance varies considerably across the globe, with low- and middle-income countries having a greater acceptance rate than high-income countries.¹ For instance, in Bangladesh, >28% of women said it is acceptable for a wife to be abused in certain circumstances.¹¹ Approximately 33% of men in SSA¹² felt that IPV was justified against women, with figures ranging from 67% in Guinea to 12% in Malawi. Between 2003 and 2008, Doku and Asante¹³ found that 39% of Ghanaian men approved of at least one kind of domestic violence against their wives. In 2014, another study by Anaba et al.⁷ found that 32% of young women justified wife-beating.

There is evidence that the socio-economic status (SES) of women determines their justification of IPV.¹³ Therefore, understanding the socio-economic inequalities in the justification of IPV is important. According to a previous study conducted in Ghana,¹⁴ working women experienced physical violence on questioning an intimate partner's economic abuse. A person's wealth quintile and education level have been proven to have a considerable impact on the justification of IPV.¹⁵ Previous studies conducted in Turkey¹⁵ and Georgia¹⁶ showed that women with no formal education, those with a primary level of education only and those from poor households were more likely to justify the use of physical violence against them. Previous studies in Ghana have focused on women's experiences with intimate partner economic abuse,¹⁴ women's approval of domestic physical violence against wives,¹³ understanding the endorsement of wife-beating,⁴ as well as young people's attitudes toward wife-beating.⁷

There is a dearth of research on the socio-economic inequalities in IPV justification in Ghana. Using data from the 2014 Ghana Demographic and Health Survey (GDHS), this study examined the socio-economic inequalities in the justification of IPV among women in Ghana. The findings of this study may be beneficial in developing effective strategies, policies and interventions to address socio-economic inequalities in the justification of IPV in Ghana.

Methods

Study design and setting

This was a population-based cross-sectional study conducted in Ghana. The data for this study came from the most recent version of the GDHS (2014). The DHS is a 5-y national survey that is conducted in >85 low- and middle-income countries. This article was written in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology guidelines (Appendix 1).

Data source, participants and study size

This study used the women's file, which contains responses from women ages 15–49 y. The GDHS captures a wide range of information on sexual and domestic violence as well as maternal and child health. It is a nationwide survey, with a representative sample of 9396 women. However, the actual sample for this study was 9267 women who had complete data on all the variables of interest. The 2014 GDHS utilized a two-stage stratified sampling technique. The first stage was the thorough selection of clusters/enumeration areas in Ghana's rural and urban districts. The second step was the selection of households within the enumeration areas chosen in the first stage. The Ghana Statistical Service, Ghana Health Service and ICF International¹⁷ questioned eligible women (permanent residents and those who joined the homes the night before the survey). The final report¹⁷ contains the detailed methodology of the 2014 GDHS. The study's data are available at https://dhsprogram.com/data/dataset/Ghana_Standard-DHS_2014.cfm?flag=0.

Study variables

Outcome variable

Justification of IPV was the outcome variable for the study. Participants were asked if they would justify IPV under five circumstances: going out without telling her husband/partner, neglecting the children, arguing with her husband, refusing to have sexual intercourse with the husband/partner and burning the food. For each of these circumstances, responses were 'yes', 'no' and 'don't know'. These were coded as no=0, yes=1 and don't know=8. For the purpose of the analysis, only women who provided confirmatory responses (either yes or no) were included in the study. Following the methodology employed by Alam et al.¹¹ and Seidu et al.,¹ if a respondent was of the view that beating would be justified, she was assigned a score of 1, otherwise she was assigned a score of 0. All five circumstances were used to generate the binary outcome variable: 1 if the respondent was of the view that beatings were justified in any circumstance and 0 if the respondent thought beatings were not justified in any circumstance.

Explanatory variable

SES was the key explanatory variable. The study used wealth quintile and maternal education as proxy measures of SES, similar to earlier studies.^{18,19} Wealth quintile was categorised into poorest, poorer, middle, richer and richest. Maternal education is a standardized variable that measures the highest degree of education gained and is divided into four categories: no education, primary, secondary and higher education.

Control variables

Age, place of residence, occupation, religion, parity, region, frequency of listening to radio, frequency of reading a newspaper and frequency of watching television were all controlled for in the study. Table 1 shows the coding for these variables. Earlier studies^{1,7,11,13} and their availability in the databases influenced the choice of the control variables.

Table 1. Sociodemographic characteristics and prevalence of justification of intimate partner violence (N=9267)

Variables	Weighted frequency	Weighted percentage	Justification of IPV (28.2%)
Maternal education			p<0.001
No education	1773	19.1	47.3
Primary	1632	17.6	35.3
Secondary	5270	56.9	22.4
Higher	592	6.4	3.6
Wealth quintile			p<0.001
Poorest	1492	16.1	50.3
Poorer	1613	17.4	37.9
Middle	1912	20.6	29.7
Richer	2084	22.5	20.3
Richest	2167	23.4	12.2
Age (years)			p<0.001
15-19	1553	16.8	35.1
20-24	1596	17.2	28.5
25-29	1593	17.2	24.8
30-34	1364	14.7	25.7
35-39	1283	13.9	23.5
40-44	1019	11.0	30.8
45-49	858	9.3	29.6
Religion			p<0.001
Christian	7445	80.3	24.4
Islam	1385	15.0	43.4
Other	437	4.7	45.9
Occupation			p=0.298
Not working	2151	23.2	30.5
Working	7116	76.8	27.5
Parity			p<0.001
0	2858	30.8	25.8
1	1317	14.2	24.1
2	1306	14.1	27.0
3	1124	12.1	27.0
≥4	2662	28.7	34.0
Frequency of reading newspapers or magazines			p<0.001
Not at all	7505	81.0	31.6
Less than once a week	947	10.2	17.9
At least once a week	815	8.8	9.5
Frequency of watching television			p<0.001
Not at all	2171	23.4	42.8
Less than once a week	2393	25.8	25.5
At least once a week	4703	50.8	22.8
Frequency of listening to radio			p<0.001
Not at all	1441	15.6	42.0
Less than once a week	2984	32.2	26.5
At least once a week	4843	52.3	25.2
Place of residence			p<0.001
Rural	4280	46.2	36.8
Urban	4987	53.8	20.9
Region			p<0.001
Western	1017	11.0	29.2
Central	932	10.1	24.2
Greater Accra	1876	20.2	15.0
Volta	715	7.7	31.6
Eastern	863	9.3	22.9

Table 1. Continued.

Variables	Weighted frequency	Weighted percentage	Justification of IPV (28.2%)
Ashanti	1759	19.0	22.7
Brong Ahafo	765	8.3	40.7
Northern	774	8.4	63.6
Upper East	355	3.8	29.1
Upper West	212	2.3	38.2

p-Values are from χ^2 test.

Statistical methods

Stata version 16.0 was used to analyse the data (StataCorp, College Station, TX, USA). Both descriptive and logistic regression analyses were employed. The study sample was described using descriptive statistics (frequency and percentages). The prevalence of IPV justification was computed based on their SES and other socio-demographic variables. Two binary logistic regression models were created. The first model (model 1) looked at SES and justifications of IPV, but the second model (model 2) controlled for the effects of all the independent variables as well as socio-economic variables. A multicollinearity test was performed using the variance inflation factor (VIF) and the results revealed no evidence of multicollinearity (mean 1.55, maximum 3.33, minimum 1.08). The results were provided as adjusted odds ratios (aORs) with 95% confidence intervals (CIs) indicating their precision. At $p < 0.05$, statistical significance was declared. To account for the survey's complex sampling design, sample weight was applied and the survey command (svy) was also employed.

Ethical approval

The Institutional Review Board of ICF International and the Ghana Health Service's Ethical Review Committee both gave their approval.¹⁷ The study also received authorization from the DHS Program to utilize these data for research.

Results

Table 1 presents results on the women who participated in the study and the prevalence of justification of IPV across the explanatory and control variables. The prevalence of justification of IPV was 28.2%. In terms of education, IPV justification was higher among those with no education (47.3%) compared with those with higher education (3.6%). It was found that IPV justification was higher among women in the poorest wealth quintile (50.3%) compared with those in the richest wealth quintile (12.19%). Women ages 15–19 y had higher proportions of IPV justification compared with those ages 45–49 y (35.1% vs 30.0%). Higher proportions of IPV justification were found among women who were not working (30.5%), those who lived in rural areas (36.8%), those with four or more children (34.0%) and those of a religion other than Islam (45.9%) compared with their counterparts. Also, lower proportions of IPV justification were

found among women who were exposed to radio (25.2%), television (22.8%) and newspapers (9.5%). It was found that IPV justification was higher among women in the Northern region (63.6%) compared with those in the Greater Accra region (15.0%) (Table 1).

Socio-economic status and justification of intimate partner violence among women in Ghana

Table 2 shows the regression analysis for SES and justification of IPV among women in Ghana. It was found that compared with women with no formal education, those with a higher level of education (aOR 0.17 [95% CI 0.10 to 0.30]) were less likely to justify IPV. In terms of wealth status, women in the richest quintile (aOR 0.44 [95% CI 0.28 to 0.67]) had lower odds of justifying IPV compared with women in the poorest wealth quintile. Compared with women in the Western region, those in the Northern region (aOR 1.73 [95% CI 1.04 to 2.89]) had higher odds of justifying IPV. With religion, those who are Muslims (aOR 1.50 [95% CI 1.20 to 1.87]) had higher odds of justifying IPV compared with those who are Christians. In terms of parity, women with a parity of ≥ 4 (aOR 1.38 [95% CI 1.06 to 1.80]) had higher odds of justifying IPV compared with those with no children. For age, women ages 35–39 y (aOR 0.42 [95% CI 0.31 to 0.57]) had lower odds of justifying IPV compared with those ages 15–19 y (Table 2).

Discussion

The prevalence and socio-economic inequalities in IPV justification among Ghanaian women were investigated in this study. The prevalence of IPV justification was 28.2% among women. A previous study in Ghana¹³ that used the 2003 and 2008 GDHS found that 39% of women justified IPV, which is consistent with the findings of this current study. Also, a previous study conducted in SSA reported an overall prevalence of 45.8% of IPV justification among women;²⁰ however, that study did not capture IPV justification among women in Ghana.

The current study, like earlier studies,^{4,13,15,21} found that SES, specifically wealth status and education status, were associated with IPV justification among women. The odds of IPV justification declined with education status. Women with a higher level of education were less likely to justify IPV than women with no formal education and those with a higher SES were less likely to justify

Table 2. Socio-economic status and justification of intimate partner violence among women in Ghana

Variables	Model 1, aOR (95% CI)	Model 2, aOR (95% CI)
Maternal education		
No formal education	Ref	Ref
Primary	0.73*** (0.61 to 0.87)	0.84 (0.70 to 1.00)
Secondary	0.52*** (0.43 to 0.62)	0.62*** (0.51 to 0.75)
Higher	0.10*** (0.06 to 0.18)	0.17*** (0.10 to 0.30)
Wealth quintile		
Poorest	Ref	Ref
Poorer	0.69*** (0.56 to 0.86)	0.86 (0.66 to 1.10)
Middle	0.54*** (0.42 to 0.69)	0.76 (0.56 to 1.04)
Richer	0.36*** (0.27 to 0.47)	0.59** (0.40 to 0.86)
Richest	0.24*** (0.17 to 0.33)	0.44*** (0.28 to 0.67)
Age (years)		
15–19		Ref
20–24		0.76* (0.60 to 0.95)
25–29		0.58*** (0.44 to 0.75)
30–34		0.51*** (0.39 to 0.68)
35–39		0.42*** (0.31 to 0.57)
40–44		0.56*** (0.39 to 0.78)
45–49		0.49*** (0.35 to 0.70)
Occupation		
Not working		Ref
Working		0.91 (0.77 to 1.08)
Parity		
0		Ref
1		1.02 (0.82 to 1.28)
2		1.32* (1.03 to 1.69)
3		1.31* (1.02 to 1.68)
≥4		1.38* (1.06 to 1.80)
Religion		
Christian		Ref
Islam		1.50*** (1.20 to 1.87)
Other		1.17 (0.87 to 1.57)
Mass media exposure		
Frequency of reading newspapers		
Not at all		Ref
Less than once a week		0.81 (0.64 to 1.02)
At least once a week		0.49*** (0.36 to 0.67)
Frequency of watching television		
Not at all		Ref
Less than once a week		0.84 (0.70 to 1.02)
At least once a week		0.87 (0.71 to 1.06)
Frequency of listening to radio		
Not at all		Ref
Less than once a week		0.68*** (0.56 to 0.82)
At least once a week		0.78** (0.64 to 0.94)
Place of residence		
Rural		Ref
Urban		0.97 (0.72 to 1.32)
Region		
Western		Ref
Central		0.71 (0.37 to 1.36)
Greater Accra		0.64 (0.37 to 1.11)

Table 2. Continued.

Variables	Model 1, aOR (95% CI)	Model 2, aOR (95% CI)
Volta		0.91 (0.53 to 1.56)
Eastern		0.64 (0.39 to 1.05)
Ashanti		0.73 (0.44 to 1.21)
Brong Ahafo		1.28 (0.78 to 2.10)
Northern		1.73* (1.04 to 2.89)
Upper East		0.44** (0.26 to 0.73)
Upper West		0.72 (0.41 to 1.24)
Pseudo-R ²	0.070	0.11
N		9267

Exponentiated coefficients with 95% CIs.

Ref: reference category.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

IPV. This finding is consistent with previous research conducted in Bangladesh,²² Ghana,¹³ Malawi,²³ Mali¹ and SSA.²⁴ Mann and Takyi²⁵ found that Ghanaian women with no education were more likely to endorse violent ideologies, implying that higher education could reduce support for violence. Education is a catalyst for empowerment and a path to independence.²⁶ The multiple advantages of education are critical in changing women's perceptions of IPV. The inverse relationship between education and acceptance of IPV among women could be explained by the fact that educated women perceive IPV as a negative phenomenon that can harm the victim physically and psychologically, which is influenced by their knowledge and exposure due to their education,¹³ whereas less educated women are less informed about the consequences of such behaviour.

In this study, the likelihood of justifying IPV decreased as wealth status increased, with women in the richest quintile having the lowest proclivity to justify IPV. Women who are wealthy have the lowest likelihood of justifying IPV according to earlier research from Georgia¹⁶ and Ghana.¹³ According to Seidu et al.,¹ the wealthiest women in Mali were more likely to justify violence against women. In a study in Ghana,²⁵ a significant relationship between economic dependency and IPV was discovered. The resource theory, together with women's financial independency and reduced reliance on males for their source of income,¹³ could explain the process underlying the association between wealth status and justification of IPV among women. According to resource theory, the kind and scale of violence between partners is determined by the availability of resources for both men and women. Financial self-sufficiency and autonomy provide some protection against IPV.^{13,14} According to Doku and Asante,¹³ the disparity in IPV between income groups arises from the fact that those with a lower SES may have fewer legitimate resources to use to gain power.

While SES, as measured by maternal education and wealth quintile, appears to be the key argument, mass media exposure, which has a link with SES was found to be equally important in IPV justification. Women who were exposed to mass media (radio and newspapers) were less likely to justify IPV. Dickson et al.⁴ reported similar findings. Mass media platforms have a critical role

in social transformation through promoting equality and social inclusion.²⁷ This is in contrast to a recent study in Mali,¹ which found that women who are exposed to mass media have a higher likelihood of justifying IPV. The most plausible explanation is that most Ghanaian women deal with mass media on a daily basis. Interaction with mass media could broaden their understanding of the ramifications of IPV.

Strengths and limitations

The study has a number of shortcomings that must be acknowledged. Due to the cross-sectional study design, it is impossible to draw a causal conclusion from the results. Furthermore, the study relied on self-reported data, which could be skewed by social desirability bias or memory bias. Despite these limitations, the study's relatively large sample size and use of a nationally representative dataset may allow the findings to be applied to all Ghanaian women of reproductive age.

Conclusions and implication for practice

The study's findings revealed that SES, specifically wealth status and education level, were associated with IPV justification among women in Ghana. This study adds to the limited literature on the role of SES in IPV justification among Ghanaian women. Most rural communities in Ghana should receive more public health education and communications about the health and social consequences of IPV justification. Strategies for eliminating IPV justification confront unique challenges in Ghana due to factors such as poverty and illiteracy. Interventions, policies, strategies and programs such as women's equitable access to formal education, formation of stronger social networks to improve women's SES, advocacy to stop IPV and empowerment initiatives among women should be focused toward contextualizing IPV in terms of the acceptance of this behaviour, since this can play a significant role in victimization and perpetration.

Supplementary data

Supplementary data are available at *International Health* online (<http://inthealth.oxfordjournals.org>).

Author's contributions: CA conceived and designed the study; CA analysed and interpreted the data; CA implemented the study and approved the final version for publication.

Acknowledgements: None.

Funding: None.

Competing interests: None declared.

Ethical approval: The Institutional Review Board of ICF International and the Ghana Health Service's Ethical Review Committee both gave their approval. The study also received authorization from the DHS Program to utilize these data for research.

Data availability: The study data are available at https://dhsprogram.com/data/dataset/Ghana_Standard-DHS_2014.cfm?flag=0.

References

- Seidu AA, Dzantor S, Sambah F, et al. Participation in household decision making and justification of wife beating: evidence from the 2018 Mali Demographic and Health Survey. *Int Health*. 2022;14(1):74–83.
- Izugbara CO, Obiyan MO, Degfie TT, et al. Correlates of intimate partner violence among urban women in sub-Saharan Africa. *PLoS One*. 2020;15(3):e0230508.
- World Health Organization, Pan American Health Organization. Understanding and addressing violence against women: intimate partner violence. Available from: <https://apps.who.int/iris/handle/10665/77432> [accessed 15 May 2022].
- Dickson KS, Ameyaw EK, Darteh EKM. Understanding the endorsement of wife beating in Ghana: evidence of the 2014 Ghana demographic and health survey. *BMC Womens Health*. 2020;20:25.
- World Health Organization. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. Available from: <https://www.who.int/publications/i/item/9789241564625> [accessed 15 May 2022].
- Iman'ishimwe Mukamana J, Machakanja P, Adjei NK. Trends in prevalence and correlates of intimate partner violence against women in Zimbabwe, 2005–2015. *BMC Int Health Hum Rights*. 2020;20:2.
- Anaba EA, Manu A, Ogum-Alangea D, et al. Young people's attitudes towards wife-beating: analysis of the Ghana demographic and health survey 2014. *PLoS One*. 2021;16(2):e0245881.
- Institute of Development Studies, Ghana Statistical Services. Domestic violence in Ghana: incidence, attitudes, determinants and consequences. Brighton: Institute of Development Studies; 2016.
- United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. New York: United Nations; 2015.
- UN Women. Commission on the status of women. Available from: <http://www.unwomen.org/en/csw> [accessed 15 May 2022].
- Alam MS, Tareque MI, Peet ED, et al. Female participation in household decision making and the justification of wife beating in Bangladesh. *J Interpers Violence*. 2018;36(7–8):2986–3005.
- Darteh EKM, Amo-Adjei J. Prevalence and correlates of emotional violence among Ghanaian women. *J Arts Soc Sci*. 2015;1(1):128–46.
- Doku DT, Asante KO. Women's approval of domestic physical violence against wives: analysis of the Ghana demographic and health survey. *BMC Womens Health*. 2015;15:120.
- Sedziafa AP, Tenkorang EY, Owusu AY, et al. Women's experiences of intimate partner economic abuse in the Eastern Region of Ghana. *J Fam Issues*. 2017;38(18):2620–41.
- Inal E, Ahmed F, Erbaydar NP. The factors associated to justify the physical partner violence among married women in Turkey. *Ethiop J Health Dev*. 2020;34(4):277–85.
- Waltermauer E, Butsashvili M, Avaliani N, et al. An examination of domestic partner violence and its justification in the Republic of Georgia. *BMC Womens Health*. 2013;13:44.
- Ghana Statistical Service, Ghana Health Service, ICF International. Ghana Demographic and Health Survey 2014. Rockville, MD: ICF International; 2015.
- Ahinkorah BO, Hagan JE, Jr, Ameyaw EK, et al. Socio-economic and demographic determinants of female genital mutilation in sub-Saharan Africa: analysis of data from demographic and health surveys. *Reprod Health*. 2020;17:162.
- Ahinkorah BO, Ameyaw EK, Seidu A-A. Socio-economic and demographic predictors of unmet need for contraception among young women in sub-Saharan Africa: evidence from cross-sectional surveys. *Reprod Health*. 2020;17:163.
- Aboagye RG, Seidu A-A, Asare BY-A, et al. Exposure to interparental violence and justification of intimate partner violence among women in sexual unions in sub-Saharan Africa. *Arch Public Health*. 2021;79:162.
- Biswas RK, Rahman N, Kabir E, et al. Women's opinion on the justification of physical spousal violence: A quantitative approach to model the most vulnerable households in Bangladesh. *PLoS One*. 2017;12(11):e0187884.
- Rashid M, Kader M, Perera NK, et al. Wife beating: a population-based study in Bangladesh. *Violence Gend*. 2014;1(4):170–5.
- Conroy AA. Gender, power, and intimate partner violence: a study on couples from rural Malawi. *J Interpers Violence*. 2014;29(5):866–88.
- Ahinkorah BO, Dickson KS, Seidu AA. Women decision-making capacity and intimate partner violence among women in sub-Saharan Africa. *Arch Public Health*. 2018;76:5.
- Mann JR, Takyi BK. Autonomy, dependency or culture: examining the impact of resource and socio-cultural processes on attitudes towards intimate partner violence in Ghana, Africa. *J Fam Viol*. 2009;24:323–35.
- Bazargan-Hejazi S, Medeiros S, Mohammadi R, et al. Patterns of intimate partner violence: a study of female victims in Malawi. *J Inj Violence Res*. 2013;5(1):38–50.
- Hassanzadeh M. Women empowerment: a study of media and its role in empowerment of Afghan's women. *Indian J Sci Technol*. 2018;11(23):1–8.